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In the Supreme Court
OF THE
United States

OCTOBER TERM, 1961

No. 803

HARRY P. LOCKLIN and ELMER J. BRANT, general partners doing business under the firm name of Radiant Color Company,

Petitioners,

vs.

SWITZER BROTHERS, INC., a corporation,

Respondent.

PETITION FOR A WRIT OF CERTIORARI
to the United States Court of Appeals for the Ninth Circuit

STEPHEN S. TOWNSEND
CHARLES E. TOWNSEND, JR.
901 Crocker Building
San Francisco 4, California
Attorneys for Petitioners.

Of Counsel:
TOWNSEND AND TOWNSEND
901 Crocker Building
San Francisco 4, California

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Most respectfully, petitioners pray that the writ of certiorari issue to review the judgment of the United States Court of Appeals for the Ninth Circuit entered on November 16, 1961.

CITATIONS TO OPINIONS BELOW

The opinion of the District Court (R. 124-140) is reported in 125 U.S.P.Q. 515. The opinion of the Court of Appeals, printed in Appendix A, is reported in ___ F.2d ___, 131 U.S.P.Q. 294.

JURISDICTION

The judgment of the Court of Appeals was entered on November 16, 1961 (Appendix B). A Petition for Rehearing, filed December 15, 1961, was denied on December 26, 1961. Jurisdiction of this Court is invoked under U. S. Code, Title 28, Section 1254(1).

QUESTION PRESENTED

Does a patent claim covering a combination of chemical ingredients satisfy legal standards of definiteness when, at the exact point where novelty is claimed over the prior art, the claim refers only in conveniently functional language to the presence of a critical ingredient in an amount "sufficient" to produce one result and "insufficient" to produce another and where testing is required to determine such amount and the actual scope of the patent monopoly?

STATUTORY PROVISION INVOLVED

The question relates to United States Code, Title 35, Section 112:

> "The specification shall contain a written description of the invention, and of the manner and process

of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

"The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

"An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."

STATEMENT OF THE CASE

This is an action instituted by Petitioners for declaratory relief seeking a determination of invalidity of respondent's Patent No. 2,809,954 issued to Zenon Kazenas covering a resin useful in the manufacture of pigments for fluorescent paints. The Court of Appeals affirmed the District Court in holding the patent valid and infringed.

The Kazenas patent in suit is for a resin composed of three ingredients—sulfonamide, aldehyde and melamine.[1]

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[1]Claim 2 is typical of the patent (the boldfaced type represents the indefinite functional language in issue):

"2. A completely condensed, thermoplastic resin consisting essentially of the condensation product of at least one aldehyde component entirely selected from the class consisting of formaldehyde and paraformaldehyde, at least one aromatic monosulfonamide having two reactive amide hydrogens, where the sulfonamido group is attached directly

The lower Courts sustained validity of Kazenas over an earlier Japanese patent containing exactly the same three ingredients but in "critically different proportions"—particularly in reference to the relative proportions of melamine utilized. (Tr. 131, 132; Appendix A, p. iv)[2] The proportion of melamine of Kazenas produces a resin substantially insoluble in aromatic hydrocarbons, an important distinction from the soluble resin of the Japanese patent (Tr. 133).

The Kazenas patent claims do not specify the critical limits in terms of definite molecular ratios or percentages. Instead, the claims recite the critical amount of melamine in terms of function or result and simply as "sufficient" to produce one result and "insufficient" to produce another. The Court of Appeals conceded that the claims left "unspecified" the critical amounts of melamine employed, and conceded that such critical limits could be determined only by actual tests conducted by a chemist

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to the aromatic nucleus through the sulfur atom, and at least one melamine compound selected from the class consisting of melamine, alkyl melamines having no more than one alkyl substituted amido nitrogen, and monohydric alkanol modified methylol and alkyl methylol melamines, the amount of said melamine compound **being an amount**, not exceeding 50% by weight of the aromatic monosulfonamide, **sufficient to render said condensation product substantially insoluble in aromatic hydrocarbon solvents but insufficient to render it thermosetting.**"

[2]The District Court also noted that a "greater amount" of aldehyde was employed by Kazenas than by the Japanese patent. The Court of Appeals in considering the subject of *infringement* commented that the aldehyde was added "in such an amount" to "permit complete co-condensation." The amount of aldehyde as taught by Kazenas was not considered a distinction over the prior art on the issue of patent validity.

but nevertheless affirmed the District Court. (Appendix A, pp. viii, ix)

REASONS FOR GRANTING THE WRIT

1. The decision in this case is in direct conflict with the decisions of this court in *General Electric Co. v. Wabash Appliance Corp.* (1938) 304 U. S. 364; and *Halliburton Oil Well Cementing Co. v. Walker* (1946) 329 U. S. 1. These cases each invalidated patent claims as too indefinite because they claimed the exact point of novelty in conveniently functional language. In these cases this Court emphasized that Congress has required for the protection of the public that the inventor claim his invention in clear and concise language in order (a) that it might be clearly distinguished from the prior art, (b) that the public can know where lie the bounds of infringement, and (c) so the public can know what is in the public domain when the patent expires.

Patent claims determine the scope of patent monopoly and must particularly point out and distinctly claim that which is the invention. The fault of a patent claim which describes its novelty over that which has gone before in terms of only functional language is that it obscures and confuses the actual area of monopoly. While the District Court found that Kazenas taught the use of melamine or melamine derivatives in a range of 11% to 50% by weight of sulfonamide, the claims contain only the functional injunction to use that amount of melamine "sufficient" to produce a resin "substantially insoluble" in hydrocarbons and yet "insufficient" to render the resin thermosetting. The amount of melamine is left "unspecified" and can be

determined only by actual chemical test. Reference to the patent specification in the present case is not helpful. The patent description included examples showing employment of only one melamine derivative while there are at the very least many hundreds of melamine derivatives encompassed by the patent claims (Tr. 454, 455, 456). The critical limits of the many melamine derivatives are undisclosed anywhere in the patent. The user must test and experiment to learn how much melamine is enough but not too much in order to know the boundaries of the claims and consequent monopoly.

2. The holding of the Court of Appeals that the claims are valid although actual testing is required to interpret the claims is in direct conflict with the decision of this Court in *Standard Brands v. National Grain Yeast Corp.* (1939) 308 U. S. 34. In the present case the Court of Appeals, while admitting the critical limits of melamine were "unspecified" and described only in "functional language", held that an ordinary chemist could perform tests to determine such limits and that, therefore, the claims were not so vague as to be rendered invalid. The Court relied upon *Minerals Separation v. Hyde* (1916) 242 U. S. 261 as authority for allowing preliminary testing. *Minerals Separation* involved claims specifically calling for use of oil amounting to "a fraction of 1%" in a mineral ore flotation process. The Court found, however, that certain preliminary tests would be required to determine the exact fractional amount of oil necessary to obtain the "best results" for each particular ore. This type of preliminary testing was held to be "within the scope of the claims" which literally specified "a fraction

of 1%." The testing required by the functional language of the Kazenas claims is not a treatment within the scope of the claims, but rather is testing absolutely required to determine the very scope and monopoly of the patent. This Court in *Standard Brands* held that when experimentation is required by claims to determine the boundaries of patent monopoly (rather than merely to secure "best results" as involved in *Minerals Separation*), then the claims are invalid as too vague and indefinite.

Chemical patent claims limited by wholly functional language in respect to proportions of ingredients are particularly vulnerable to indefiniteness and its dangers. The results of chemical testing and experimentation are not foreseeable and are, in fact, unpredictable by the very nature of chemistry. This unpredictable nature of chemical behavior was commented on by this Court in *Corona Cord Tire Co. v. Doran Chemical Corp.* (1928) 276 U. S. 358.

The claims of the Kazenas patent require the user to perform collateral tests in a field where testing and experimentation follow no specific rules of predictability of result. It confuses the area of monopoly and is in direct conflict with the basic reasons for requiring accuracy and clarity in claiming. See, for example, *General Electric*, *Halliburton*, supra, and *United Carbon Co. v. Binney & Smith Co.* (1942) 317 U. S. 228.

3. A decision of this Court is required to determine the extent, if any, that Section 112 of Title 35, United States Code has changed or modified the rule condemning use of functional language at the exact point of novelty. *Halliburton v. Walker*, supra, was decided by this Court

in 1946 and extended the rule of the *General Electric* case, supra, to combination claims[3] and held that the use of conveniently functional language at the exact point of novelty rendered the claim too indefinite to meet the requirements of the then statute.[4] In 1952, Congress supposedly sought to liberalize this rule through the addition of the third paragraph of Section 112 of Title 35, United States Code, reading as follows:

> "An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."

The apparent conflict of the statute with the *Halliburton* rule was foretold at the time of enactment. The commentator's notes in 35 U.S.C.A., p. 25, reads:

> "... It is unquestionable that some measure of greater liberality in the use of functional expressions in combination claims is authorized than had been permitted by some court decisions, and that decisions such as that in *Halliburton Oil Well Cementing Co. v. Walker*, 67 S. Ct. 6, 326 U. S. 1, 91 L. Ed. 3 (1946) are modi-

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[3] *Halliburton* specifically dealt with patent claims covering mechanical elements in combination, whereas, the Kazenas patent claims cover chemical elements in combination. Neither *Halliburton, General Electric*, nor any other case decided by this court has made any distinction as to the legal requirements for the definiteness of claim language regardless of the category of invention to which the claims relate. The legal standards for definiteness are the same for all statutory classes of invention.

[4] RS 4888, 35 U.S.C. 33, then as now, required the patentee to "particularly point out and distinctly claim . . . his invention or discovery."

fied or rendered obsolete, but the exact limits of the enlargement remain to be determined . . ."

Since enactment of Section 112 patent owners and those others of the public concerned with the proper interpretation of patent claims have had no guidance as to the extent, if any, such legislation may have modified the established rule of this Court concerning the use of functional language to describe an exact point of novelty in a patent claim.

This case, therefore requires the resolution of the important question not heretofore decided by this Court as to whether 35 U.S.C. 112 liberalizes or renders obsolete the rule of *Halliburton* and *General Electric* which absolutely condemned the use of functional claim language at the exact point of novelty. Both the District Court and Court of Appeals below chose to ignore this vital question in reaching their common conclusion that the Kazenas patent claims are valid.

4. Future conflict between circuits as to the validity of the Kazenas patent is remote. The industry is very restricted and is dominated by respondent, petitioners and Lawter Chemicals, Inc. Lawter was sued by respondent under the patent in suit and the suit was later dismissed by stipulation (768 O.G. 280). No one new is likely to enter the field as long as the decision below stands, particularly in view of the practical impossibility of ascertaining the area of monopoly defined by the claims. This probability is further emphasized in view of respondent's prior history of patent litigation in pursuit of unwarranted monopoly in restraint of trade and in violation

of the Anti-Trust Laws, *Switzer Brothers, Inc. v. Locklin et al.* (7 Cir. 1961), 297 F.2d 39, petitions for certiorari filed February 28, 1962 as Dockets No. 758 and No. 759. Absolute exclusion of the public is established by the decision below for the entire unexpired term of the patent, i.e., until October 1974. This is enough to warrant review by this Court as noted in *Muncie Gear Works v. Outboard, M. & Mfg. Co.* (1942), 315 U.S. 759, 766; *Mackay Radio & Teleg. Co. v. Radio Corp. of A.* (1939), 306 U.S. 86, 89; *Schriber-Schroth Co. v. Cleveland Trust Co.* (1938), 305 U.S. 47, 50; and *Exhibit Supply Co. v. Ace Patents Corp.* (1942), 315 U.S. 126, 128.

CONCLUSION

For the foregoing reasons, and each of them, it is respectfully requested that this Petition for a Writ of Certiorari should be granted.

March 16, 1962.

Respectfully submitted,

STEPHEN S. TOWNSEND
CHARLES E. TOWNSEND, JR.
Attorneys for Petitioners.

Of Counsel:
TOWNSEND AND TOWNSEND

(Appendices A and B Follow)

Appendices A and B

Appendix A

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

HARRY P. LOCKLIN and ELMER J. BRANT, general partners doing business under the firm name of RADIANT COLOR COMPANY, *Appellants*, vs. SWITZER BROTHERS, INC., a corporation, *Appellee.*	No. 16,780 Nov. 16, 1961

Upon Appeal from the United States District Court
for the Northern District of California
Southern Division

Before: BARNES, JERTBERG and MERRILL, Circuit Judges

MERRILL, Circuit Judge:

Appellants, doing business in California as Radiant Color Company, are manufacturers of fluorescent paints. They have taken this appeal from a judgment determining that they have infringed a patent held by appellee. The parties hereafter shall be referred to as "Radiant" (appellants) and "Switzer" (appellee).

Suit was originally brought by Radiant. It had been notified by Switzer that certain of its pigments infringed Switzer's resin patent number 2,809,954. This action was brought seeking declaratory relief: a determination that the patent in question was invalid and was not infringed. Switzer counterclaimed, charging Radiant with infringement and asking injunctive relief. The district court ruled that the patent was valid and infringed and granted Switzer relief in accordance with these determinations.

The patent in question was issued October 15, 1957, to Zenon Kazenas and subsequently was assigned to Switzer. It is for a resin useful in the maufacture of pigments and for the process

of obtaining that resin. A preliminary consideration of the characteristics and chemical components of such resins is essential to any discussion of the issues presented by this appeal.

Such resins are classified industrially as "thermosetting" and "thermoplastic." A thermosetting resin is one which, upon heating in a mold, hardens to form an infusible "thermoset" resin that no longer can be softened or fused by heating. A thermoplastic resin, in contrast, can be softened or fused by heat repeatedly.

For resins satisfactorily to be incorporated into pigments, certain characteristics are important. The resin must be capable of being finely ground. Once ground, it must remain insoluble in common paint vehicles or solvents and in a state of free flowing suspension.

Thermosetting resins, being tough and hornlike, are generally difficult to grind. Thermoplastic resins generally are also difficult to grind due to their tendency to ball up or "agglomerate" at the temperatures encountered during grinding. Furthermore, they generally do not remain in a free flowing state of suspension in common paint vehicles, but again tend to agglomerate.

We are here concerned with three chemical components: melamines, sulfonamides and aldehydes. These components and their characteristics were discussed in some detail by Dr. David B. Hatcher, an expert witness called by Switzer.

Melamine and sulfonamide are basic resin ingredients. Aldehyde was described as "the linker, you might call it the glue, between the larger molecules" of melamine or sulfonamide. Where melamine alone is reacted with an adlehyde, the result is a "self-condensed" resin, the molecules of melamine condensing with each other through reaction with the aldehyde. Similarly, a sulfonamide-aldehyde resin is a self-condensation. "Co-condensation" occurs where two unlike molecules are reacted together.

Dr. Hatcher testified, "Normally, melamine is resistant to co-condensation. It has a tendency to condense with itself so that most efforts to co-condense it are unsuccessful. What results is not a single resin resulting from co-condensation • • • but a mixture of self-condensed resins." Further, melamine resins are normally thermoset with considerable strength and resistance to crumbling and breaking.

Sulfonamide resins, on the other hand, are normally thermoplastic and soluble in aromatic solvents.

The Zazenas patent is for a resin which is a co-condensation of all three of these chemical components and which is thermoplastic but still is capable of being finely ground and which remains insoluble without agglomeration in aromatic hydrocarbon solvents.[1]

Upon this appeal Radiant attacks the validity of the Kazenas patent upon five separate grounds.

The first issue is presented by Radiant's contention that the Kazenas patent is lacking in patentable novelty. The prior art upon which Radiant mainly relies is a Japanese patent, the Matsuo and Nitta Patent No. 181,405, issued in 1950. This patent, Radiant asserts, discloses a thermoplastic resin made by co-condensing formaldehyde, sulfonamide and melamine.

The district court carefully considered the Japanese patent and, apparently relying on the testimony of Dr. Hatcher with respect to his experiments upon this patent, concluded:

> "The Japanese resin, as described in the patent, thus has properties similar to those of the Kazenas resin in that it is thermoplastic and has a relatively high melting point, but it differs in at least one vital respect in that it is soluble in aromatic hydrocarbons, while the Kazenas resin is substantially insoluble."

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[1] Radiant was found to have infringed Claims 1, 2, 3, 4 and 9 of the Kazenas patent. Claim 2 is typical. It provides:

"A completely condensed, thermoplastic resin consisting essentially of the condensation product of at least one aldehyde component entirely selected from the class consisting of formaldehyde and paraformaldehyde, at least one aromatic monosulfonamide having two reactive amide hydrogens, where the sulfonamide group is attached directly to the aromatic nucleus through the sulfur atom, and at least one melamine compound selected from the class consisting of melamine, alkyl melamines having no more than one alkyl substituted amido nitrogen, and monohydric alkanol modified methylol and alkyl methylol melamines, the amount of said melamine compound being an amount not exceeding 50% by weight of the aromatic monosulfonamide, sufficient to render said condensation product substantially insoluble in aromatic hydrocarbon solvents but insufficient to render it thermosetting."

The court then pointed out:

> "Both the Japanese resin and the Kazenas resin are composed of a sulfonamide, an aldehyde, and melamine, but in critically different proportions. The most significant difference is in the amount of melamine. The Japanese patent specified a 'small' amount of melamine which, in the single example set forth in the patent, is 5% by weight of the para-toluol-sulfamide employed. The Kazenas patent teaches the use of a substantial amount of melamine or melamine derivative ranging in amount from 11 to 50% by weight of the sulfonamide. Kazenas also teaches the use of a greater amount of aldehyde in relation to the sulfonamide."

Radiant contends that a mere varying in proportions cannot constitute novelty and invention and that this is all that the Kazeas' patent adds to the Japanese patent.

The general rule as stated in Smith vs. Nichols, 1874, 21 Wall. (88 U.S.) 112, 119, is:

> "• • • a mere carrying forward of new or more extended application of the original thought, a change only in form, proportions, or degree, the substitution of equivalents, doing substantially the same thing in the same way by substantially the same means with better results, is not such invention as will sustain a patent."

In Greene Process Metal Company vs. Washington Iron Works, 9 Cir., 1936, 84 F.2d 892, 893, this court *held unpatentable a* discovery described as follows:

> "Greene's alleged discovery was that the desired result—removal of sulfur and other impurities from iron or steel—might be accomplished more effectively and more economically by increasing the percentage of silica in the slag used for that purpose. • • •"

The test would seem to be whether the varying of proportions brings about a mere improvement in the already discovered result or, on the other hand, accomplishes a new and unexpected result. In Application of Aller, Court of Customs and Patent Appeals, 1955, 220 F.2d 454, 456, it is stated:

"Normally, it is to be expected that a change in temperature, or in concentration, of in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. • • • Such ranges are termed 'critical' ranges, and the applicant has the burden of proving such criticality. • • • However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. • • • More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. • • •"

With reference to Radiant's contention that the Kazenas patent lacked invention, the district court stated:

"Plaintiffs urge that it did not constitute invention for Kazenas to vary the proportion of melamine and aldehyde to achieve substantial insolubility in aromatic hydrocarbons. But the Japanese patent itself does not even suggest the possibility that a greater proportion of melamine and aldehyde might produce a resin substantially insoluble in aromatic hydrocarbons. Indeed, it would discourage experimentation along these lines. Since the patent states that, except *for greater waterproofness and a higher melting point*, the Japanese resin does not lose the characteristics of a conventional para-toluol-sulfamide resin, one could only conclude that the modification with melamine does not affect its solubility in aromatic hydrocarbons.

"It is possible that the mere fact that melamine-aldehyde resins were known to be insoluble in aromatic hydrocarbons might suggest to a skilled chemist that the modification of a sulfonamide-aldehyde resin with melamine might make the resin less soluble in aromatic hydrocarbons. But, it could not have been anticipated that sufficient melamine could be used to achieve substantial insolubility in aromatic hydrocarbons without simultaneously making the resin thermosetting."

The testimony of Dr. Hatcher provides clear support. Emphasizing the overpowering nature of melamine and its tendency to thermoset, he concluded that the Japanese patent would not have led the ordinary chemist to greater experimentation in increasing the proportions of melamine. He discussed the many classes of melamine and sulfonamide compounds. He pointed out that a chemist faced with this multitude of possible components and with the economics of industrial research would actually be discouraged from experimentation along these lines and would tend to accept the original discouraging premise that an increase in melamine would result in thermosetting.

The district court's conclusion upon this issue, with which we agree and which we here adopt, was as follows:

> "The sum and substance of the teachings of the prior art, including the Japanese patent, was that the properties of melamine-aldehyde resin could be modified to some extent by adding a small amount of a sulfonamide, and that the properites of a sulfonamide-aldehyde resin could be modified by adding a small amount of melamine. These teachings were narrow ones. They did not constitute such important and substantial discoveries that the ordinarily capable chemist could carry on from that point and in normal course produce the Kazenas resin. The Kazenas patent discloses the new and broader concept that melamine and sulfonamide, each in a relatively substantial quantity, could be reacted together with an aldehyde to produce a distinct resin having some of the properties of a sulfonamide-aldehyde resin and some of the properties of a melamine-aldehyde resin, and other properties which are unique. The Kazenas resin represented a new arrangement of ingredients that produced a new, unexpected and useful result. The Court is satisfied that it was such an advance over the prior art as to constitute invention."

Radiant's second attack upon the validity of the patent is addressed to the fact that the limits of melamine are expressed in functional language. The claims provide (see footnote 1) that the amount of melamine shall be "an amount • • • sufficient to render said condensation product substantially insoluble in aro-

matic hydrocarbon solvents but insufficient to render it thermo-setting.

Since the novelty for which Switzer contends is that this resin is both thermoplastic and insoluble, Radiant contends that this language violates the rule against the use of functional language at the precise point of novelty. Violation of this rule, Radiant contends, renders the patent invalid.

Many authorities are cited by Radiant in support of its position. As disclosed by these cases, the vice of a description in terms of function is that it may in either of two ways adversely affect the public interest: by broadening the claim beyond the scope of actual invention; or by rendering the description so vague that the actual scope of the patent is not made clearly apparent to those concerned.

General Electric Company vs. Wabash Company, 1937, 304 U.S. 364, dealt with a patent upon a light filament which attacked the problem encountered by prior art that such filaments had a tendency toward "sagging and offsetting" which reduced the life of the light bulb. The claim prescribed that the filaments should consist of grains "of such size and contour as to prevent substantial sagging and offsetting" during a commercially useful life for the bulb. The court stated at page 371:

> "The claim uses indeterminate adjectives which describe the function of the grains to the exclusion of any structural definition, and thus falls within the condemnation of the doctrine that a patentee may not broaden his product claims by describing the product in terms of function. Claim 25 vividly illustrates the vice of a description in terms of function. 'As a description of the invention it is insufficient and if allowed would extend the monopoly beyond the invention.'"

Further, the court stated at page 372:

> "The Circuit Court of Appeals below suggested that 'in view of the difficulty, if not impossibility, of describing adequately a number of microscopic and heterogeneous shapes of crystals, it may be that Paez made the best disclosure possible, • • •.' But Congress requires, for the protection of the public, that the inventor set out a definite limitation of his

patent; that condition must be satisfied before the monopoly is granted."

In our case Switzer, in justification of the functional language, points out that the alternative would have been to state the critical lower limits precisely. This was done in the examples set forth in the specification. Switzer points to the fact that of the considerable number of melamine compounds encompassed by the patent, each has a different critical limit. It asserts that this renders it wholly unreasonable to expect the claims to be specific in this respect or to expect any further specificity than that which appears in the examples given.

In the General Electric case, the effect of the functional language was to broaden the claim to include *all* grains of whatever size or shape so long as they would accomplish the desired result. In our case the critical area is not enlarged in such a fashion. The critical point remains the same for each melamine compound used. It simply is not specified. But whether specified or unspecified the scope of the claim is precisely that of the invention.

Nor can it be said that this failure to specify the critical limit precisely results in a fatal vagueness of description. The claim must be sufficiently clear to allow others to reproduce the result at the end of the monopoly period and to enable contemporary inventors to ascertain whether or not they are infringing.

Upon this point the district court concluded:

"When the general description, the specific examples, and the claims are read together, the invention is so plainly defined that no one skilled in the art should have any difficulty in practicing it."

The record supports this statement. There is testimony to the effect that "sufficient melamine to render the resin substantially insoluble" is a simple, clear test for an ordinary chemist to perform and one which does not require extensive experimentation in order that the precise critical limits be ascertained in a particular case. Under such circumstances, the fact that some preliminary testing is required does not render the claim invalid for vagueness. Mineral Separation, Limited vs. Hyde, 1916, 242 U.S. 261.

We conclude that the fact that the limits of melamine are, in the claims, stated in functional language does not render the patent invalid.

Radiant's third attack upon the validity of the patent is addressed to the sufficiency of the description contained in the specification. Radiant contends that it does not meet the requirements of 35 U.S.C. § 112 that there be "a written description" which must be in "full, clear, concise and exact terms" directed to "any person skilled in the art."

Radiant first asserts that the specification, as distinguished from the claims, does not describe the insolubility of the product. In our view, the specification when read as a whole does sufficiently describe this feature.

Radiant contends that the record establishes that one skilled in the art could not reproduce the product from the description. It appears that the district court discounted the testimony upon which Radiant relies and favored the contrary testimony of Dr. Hatcher.

Radiant protests that Dr. Hatcher was not an ordinary chemist but an expert and that his ability to reproduce was not the proper test.

The ability of "any person skilled in the art" to reproduce the product was a question for the trier of fact. It was for the district court to determine whether the steps followed by Dr. Hatcher were of a type which required an expert as distinguished from an ordinary industrial chemist. We cannot say that the court's findings in this area were clearly erroneous.

We conclude that Radiant's contentions in this respect are without merit.

Radiant next contends that the Kazenas claims, as Switzer here asserts them, are invalid because they were not, in their present form, included in the original application. The feature to which this contentiaon is specifically addressed is the resin's insolubility in aromatic solvents.

The original application was filed January 26, 1954. The claims did not then provide that the amount of melamine was required to be sufficient to render the resin substantially insoluble in aro-

matic hydrocarbon solvents. Early in 1954 Switzer adopted the Kazenas resin commercially. In 1956 Switzer learned that two competitors planned to introduce competitive products and, informing the Patent Office of this fact, sought to expedite issuance of patent. Following interviews in the Patent Office, the amended claims upon which the patent ultimately was issued were presented May 2, 1957. They were unaccompanied by the oath of Kazenas and, Radiant contends, were presented after the public use period had expired and intervening rights of the public had accrued. Radiant contends that under these circumstances the feature of insolubility cannot be relied upon to impart novelty.

The defense of intervening rights for which Radiant contends has developed in cases dealing with reissue and divisional patents. It is apparently aimed at protecting the public against enlargement of the original claim to encompass discoveries by others and also at achieving an equitable balance between the right of the inventor to an adequate claim of that which he has invented and the public right to reliance upon the inventor's apparent disclaimer of such invention as is not claimed.

In the area of amendment prior to patent issuance a further consideration is the public interest in an adequate disclosure by the patentee of that which is sold to the public. In Muncie Gear Company vs. Outboard Company, 1942, 315 U.S. 759, 768, it was held, "The claims in question are invalid if there was public use, or sale, of the device which they are claimed to cover, more than two years before the first disclosure thereof to the Patent Office." In Wire Tie Machine Company vs. Pacific Box Corporation, Ltd., 9 Cir., 1939, 102 F.2d 543, this court held the rule inapplicable in a case where the amendment complained of added narrower claims and not new matter and further held that such amendment needed no supplemental oath.

Here the feature of insolubility was disclosed in the specifications of the original application, although its bearing upon the critical limit in the amount of melamine was not expressed. We are not then faced with a claim of new matter nor with an attempt to rectify an inadequate disclosure or to appropriate subsequent developments or discoveries. The amendment actually amounted to no more than a narrowing of the claims to articulate

a limitation implicit in the specifications but not explicit in the claims themselves. The circumstances under which the amendment was filed would indicate that it resulted from the ordinary give and take of Patent Office procedures: the shaping of the expression of that which was sought in order to make it conform appropriately to that which it was felt could properly be granted.

We conclude under these circumstances that no intervening public rights can be said to have attached to the insolubility feature of the Kazenas patent or to the matters incorporated in the claims by amendment; that no supplemental oath was required.

Finally Radiant contends that the specification of the patent is inadequate to support a claim for a broad class of melamine derivatives. It is asserted that "there is no recipe given for the proportions of the entire class of melamine compounds by which one could be certain to obtain the critical result." It is pointed out that all that Kazenas did was to give recipes for two members of the class. Radiant concludes that Kazenas thus "asked the art to experiment with other members of the class to obtain the result which he desires." Stating its proposition in somewhat different language, Radiant contends that the patent must disclose that all members of the broad melamine class are effective to produce the alleged novel result.

The cases cited by Radiant have their root in The Incandescent Lamp Patent, 1895, 159 U.S. 465, where at page 472 the court stated:

> "Is the complainant entitled to a monopoly of all fibrous and textile materials for incandescent conductors? If the patentees had discovered in fibrous and textile substances a quality common to them all, or to them generally, as distinguishing them from other materials, such as minerals, etc., and such quality or characteristic adapted them peculiarly to incandescent conductors, such claim might not be too broad. If, for instance, minerals or porcelains had always been used for a particular purpose, and a person should take out a patent for a similar article of wood, and woods generally were adapted to that purpose, the claim might not be too broad, though defendant used wood of a different kind

from that of the patentee. But if woods generally were not adapted to the purpose, and yet the patentee had discovered a wood possessing certain qualities, which gave it a peculiar fitness for such purpose, it would not constitute an infringement for another to discover and use a different kind of wood, which was found to contain similar or superior qualities. The present case is an apt illustration of this principle. Sawyer and Man supposed they had discovered in carbonized paper the best material for an incandescent conductor. Instead of confining themselves to carbonized paper, as they might properly have done, and in fact did in their third claim, they made a broad claim for every fibrous or textile material, when in fact an examination of over six thousand vegetable growths showed that none of them possessed the peculiar qualities that fitted them for that purpose. Was everybody then precluded by this broad claim from making further investigation? We think not."

In the instant case there is nothing in the record to suggest that the qualities discovered by Kazenas were not common to melamine and to such of its derivatives as were specified in the claims, the only difference being in the critical limit in the amount of the component used. As we have already pointed out, there is evidence that the ascertainment of these specific limits in any particular case did not require extensive or undue experimentation. With respect to Radiant's contention that Switzer must establish the effectiveness of each member of the broad class, the district court stated:

"Plaintiffs have cited no authority and the court is aware of none that places such a burden on the defender of a patent."

We agree.

In our judgment this contention is without merit.

We conclude that in all aspects challenged by Radiant, the Kazenas patent is valid.

Radiant next contends that it has not infringed the Kazenas patent. In this respect it looks not to the claims (which we have

already held to be valid), but to the examples set forth in the specifications. It asserts that it uses more melamine (27.6% or 36.9%) than was used in the examples (13%); that it uses too little formaldehyde; that its process is different from that shown in the examples.

The amounts of melamine used by Radiant are well within the upper limit (50%) set by the claims. While the claims do not specify the amount of aldehyde, it is clear that it is such an amount as will permit complete co-condensation.

Radiant asserts that its proportions are closer to those of the Japanese patent than to those of the Kazenas patent and that it should accordingly be regarded as protected by prior art. Radiant concedes, however, that the Japanese patent is not adequate to meet its needs. What it requires is that which the Kazenas resin provides: completeness of co-condensation and insolubility in aromatic solvents.

In our judgment then, the district court was not in error in concluding that Radiant's resins infringed the Kazenas patent.

In several respects in post-trial proceedings (the settlement of findings, motions for new trial and to vacate judgment) Radiant attempted to introduce new matters of evidence. It offered proof of other patents to establish lack of invention. It offered testimony of Kazenas in another unrelated proceeding assertedly inconsistent with Switzer's position in the instant case. It offered testimony relating to post-decision tests run by it. It invited a second look at physical evidence which had been offered at trial to demonstrate the free flowing and insoluble character of the Kazenas resin, asserting that such second look would demonstrate that since trial the resin had agglomerated.

All of this evidence was rejected by the district court for failure of Radiant to show diligence or justification for its failure to discover and present these matters at the time of trial. Radiant assigns error in this respect but we find no abuse of discretion in this ruling. The time for testing of proof is the time of trial. Our judicial system does not contemplate that the rights of litigants shall be held in abeyance for months or years in order that hindsight may provide a more accurate appraisal of evidence.

Radiant protests that the post-trial change in physical evidence should not be subject to the requirement of diligence. If the fact was that the resin would agglomerate and would not remain free flowing, Radiant could have established this by its own pre-trial experiments and have introduced evidence with respect to those experiments at the proper time. Post-trial experimenting with the evidence produced at trial is no substitute for the proper and orderly presentation of proof. Furthermore, there is no evidence as to the conditions to which this exhibit had been subjected following trial and thus a proper foundation was not laid for the admissibility of this offered proof.

Radiant protests that a showing of diligence is not necessary where the proof offered shows a lack of clean hands on the part of the patentee; that it had offered proof of deception practiced by Kazenas and Switzer both on the Patent Office and on the district court. It contends that in the public interest, where the question of deception or unclean hands is at issue, the question can be raised at any time. Hazel-Atlas Glass Company vs. Hartford-Empire Company, 1944, 322 U.S. 238, is cited where the court at page 246 states:

> "This matter does not concern only private parties. There are issues of great moment to the public in a patent suit. • • • Furthermore, tampering with the administration of justice in the manner indisputably shown here involves far more than an injury to a single litigant. It is a wrong against the institutions set up to protect and safeguard the public, institutions in which fraud cannot complacently be tolerated consistently with the good order of society. Surely it cannot be that preservation of the integrity of the judicial process must always wait upon the diligence of litigants. The public welfare demands that the agencies of public justice be not so impotent that they must always be mute and helpless victims of deception and fraud."

However, it should be obvious that every disgruntled litigant cannot, in the name of public welfare, secure a new trial simply by charging fraud. In Hazel-Atlas the Supreme Court recognized this, stating at page 248:

> "The petition must contain the necessary averments, supported by affidavits or other acceptable evidence; and the • • • court may in the exercise of a proper discretion reject the petition • • •."

In Hazel-Atlas the proof of fraud was clear. Not so in the instant case. Here the district court, after listening at great length to the contentions of Radiant's counsel respecting its proof of deception, stated:

> "• • • I don't see any aspect of fraud or misrepresentation or chicanery involved in the application for the patent in this case • • •."

and later:

> "I abhor fraud and misrepresentation and I never have any hesitancy in turning aside any decision or in granting relief in cases of that kind. But I don't discern in this case anything of that sort."

We have examined the matters charged by Radiant and the offered proofs and concur in the views of the district court. It was not then an abuse of discretion for the district court (bearing in mind both lack of diligence and the showing made with respect to fraud and the public welfare) to deny a new trial upon the ground of unclean hands or to refuse to delay judgment in order that hearing might be had on the newly tendered issues.

Affirmed.

(Endorsed) Opinion Filed Nov. 16, 1961.

Frank H. Schmid, Clerk.

Appendix B

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

Harry P. Locklin, et al., Appellants, vs. Switzer Brothers, Appellee.	No. 16780 JUDGMENT

Appeal from the United States District Court for the Northern District of California, Southern Division.

This Cause came on to be heard on the Transcript of the Record from the United States District Court for the Northern District of California, Southern Division, and was duly submitted.

On Consideration Whereof, It is now here ordered and adjudged by this Court, that the judgment of the said District Court in this Cause be, and hereby is affirmed with costs in favor of the appellee and against the appellants. It is further ordered and adjudged by this court that the appellee recover against the appellants for its costs herein expended and have execution therefor.

Filed and entered November 16, 1961